REMARKS

This application has been amended so as to place it in condition for allowance at the time of the next Office Action.

The Official Action rejects claims 1-6 under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons.

The Official Action states that the amendment to claim 1 made by the applicants as part of the paper filed June 16, 2003, fails to find support in the application as originally filed. Please note that applicants have amended independent claim 1 to explicitly recite that the conductive intermediate layer contains at least two types of acid salts selected from the group consisting of a number of identified compositions, each of which is described in the application as originally filed. Additionally, applicants have canceled claims 2 and 3, which were also identified by the Official Action.

The Official Action rejects claims 1-6 under 35 USC 102(e) as being anticipated by NAGASHIMA et al. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

Applicants note that the added metal and acid components in Table 1 of the applied NAGASHIMA et al. reference describe combinations of two types of metal, namely Zr-Zn, Si-Ni,

and Ti-Zn. Please note that neither Si, Ni, nor Ti, the metals described by NAGASHIMA et al., are included in the list of metals recited in claim 1 as it is now amended. Accordingly, the applied NAGASHIMA et al. reference cannot reasonably be construed as disclosing any of the possible combinations of two metals encompassed by claim 1 in its current form.

Please note that, in addition to the explicit listing of compositions added to independent claim 1, applicants have also further recited limitations for the film thickness of an organic resin layer. The minimum value of 0.1 μm is supported by the description on page 16, lines 6-11 of the present specification as originally filed. The maximum value of 1.0 μm is described in connection with examples 27-34 of the present specification.

Because claims 2 and 3, both as filed, are now combined, the definition of "metal salts of each acid (acid salt)", comprising an anionic component and a cationic component, is now clear. Consequently, the rejection referring to introduction of a new matter is believed to have been evaded.

Inclusion of same acid salt both in an intermediate layer and an organic resin layer is found in Tables 1, 2 and 3-1 disclosed on pages 33-35. That is to say, the matter mentioned immediately above is obvious from the inclusion of the subcolumn of Metal included in the Intermediate Layer column, the Metal

subcolumn in the Organic Resin Layer column, and the Kind of metal salt subcolumn in the Composition of surface-treating agent column.

The steel sheet having surface-treated zinc-based plating of the present invention is characterized in that the layers comprise a zinc-based plating layer, and thereon, a conductive intermediate layer, containing at least two types of specified metallic salt of acid and on said intermediate layer, an organic resin layer containing said "at least two types of metallic salts of acid", which are same as those included in the intermediate layer, wherein the coating thickness of the organic resin layer is in a range of 0.1 to 1.0 μm (c.f. amended claim 1). A steel sheet of the present invention satisfying the structural elements mentioned above is a steel sheet concurrently having excellent corrosion resistance and conductivity at a high level despite that the steel sheet is not provided with a chromate film, which has conventionally been indispensable to the maintenance of corrosion resistance. The steel sheet of the present invention does not include chromium and hence, draining treatment as a countermeasure for the prevention of environmental pollution is unnecessary (cf. Page 7, lines 13-22).

As set out in a section entitled Background Art, given from page 5, line 14 to page 6, line 9 in the specification of the present application, according to conventional arts

concerning surface-treated steel sheets, when a resin layer is disposed as a whole to a grater coating thickness, because resin has an insulation property, the resin layer becomes less conductive, although corrosion resistance is able to be secured. That is to say, the effects that a resin layer imparts to a steel sheet is inconsistent as far as corrosion resistance and conductivity are concerned.

In the present invention, at least two types of acid salts selected from the group consisting of each of phosphate, nitrate, acetate and fluoride of Cu, Co, Fe, Mn, Sn, V, Mg, Ba, Al, Ca, Sr, Nb, Y and Zn are included in both an intermediate layer and an organic resin layer having a coating thickness of 0.1 to 1.0 μm. The present inventors discovered that corrosion resistance and conductivity can be concurrently secured on a high level, as mentioned above, by specifying the coating thickness of an organic resin layer and enforcement of concurrent inclusion of at lest two types of specific acid salts in an organic resin layer and an intermediate layer (cf. Inventive examples 12-16, 19-34. 45-61 and 69-72).

In general, it is well known that, on a surface of Zn-plating at the initial developing stage of corrosion, a corrosion product is generated by chlorine ion, which is corrosion factor, and when the substance acts as a nonconductor, a corrosion cell can hardly be formed and this contributes to the obtainment of

excellent corrosion resistance. It is considered that corrosion resistance can be improved by making a corrosion product minute and stable for a long period of time.

According to the present inventors, at least two types of acid salts are presumed to promote, at the initial stage of corrosion generation, the generation of a fine and stable corrosion product. After intense study of this, the inventors found this improved corrosion resistance. An organic resin layer, when compressed by a tip of a probe, at the measurement of conductivity, is transformed in a micro field of vision. In electric resistance welding and so forth, a micro-compressed transformed portion as mentioned above is generated and with the exposure of a conductive intermediate layer, conductivity is secured. According to the present invention, at least two types of acid salts mentioned above are included in an organic resin layer also, sufficient conductivity is able to be acquired by the transformation of the organic resin layer, in as much as a coating thickness is 1 μm or less.

By contrast, NAGASHIMA 6,180,177 describes merely a conventional approach, as set forth from page 2, line 10 to page 3, line 1 of the specification of the present application. A steel sheet according to NAGAHSHIMA has a property of an extent, as set out in paragraphs from line 7 from the bottom of page 2 to page 3, line 1 of the present specification, namely, "However the

surface-treated metal sheet obtained by this process... cannot be said to be sufficiently resistant to corrosion". It is certain from Table 1 of NAGASHIMA that assortment of Sr-Zn, Si-Ni and Ti-Zn as combination of at least two types of acid salts is possible. Nonetheless, the combination of Sr-Zn, Si-Ni and Ti-Zn is not found in the present invention's combination of "at least two types of acid salts" which is neither disclosed nor suggested in NAGASHIMA.

NAGASHIMA, in the first place, does not refer to the presence of an intermediate layer and or organic resin layer. Even more, there is no disclosure or suggestion in NAGASHIMA that acid salts obtained by the combination of Zr-Zn, Si-Ni and Ti-Zn which are in existence in the two layers, are an intermediate layer and an organic resin layer.

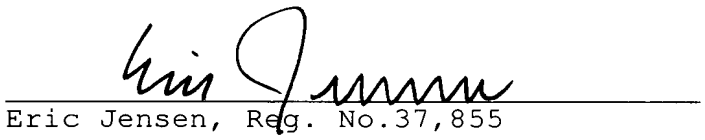
In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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